What is Claimed Is:

1. A method for plating a homogenous copper-palladium alloy, comprising:

providing a plating solution to an electrochemical plating cell, wherein the plating solution includes a copper ion source at a concentration of between about 0.1 M and about 1.0 M and a palladium ion source at a concentration of between about 0.0005 M and about 0.1 M; and

supplying an electrical deposition bias to a plating surface, wherein the electrical deposition bias is configured to simultaneously deposit copper ions and palladium ions onto the plating surface.

2. The method of claim 1, wherein the palladium ion source comprises at least one of $PdSO_4$ and $PdCl_2$.

3. The method of claim 1, wherein the concentration of the copper ion source is between about 0.4 M and about 0.8 M.

4. The method of claim 1, further comprising plating the alloy on the plating surface, wherein the alloy comprises about 1.5 weight percent of palladium and about 98.5 weight percent of copper.

5. The method of claim 4, wherein the palladium in the alloy is between about 0.2 weight percent and about 1.5 weight percent.

6. The method of claim 4, further comprising annealing the alloy at a temperature of between about 200° C and about 400° C for a duration of between about 30 seconds and about 60 minutes.

7. The method of claim 1, wherein the electrical deposition bias has a current density of between about 0.5 mA/cm^2 and about 80 mA/cm^2 over the plating surface.

8. The method of claim 1, further comprising rotating the plating surface between about 5 RPM and about 60 RPM while the electrical deposition bias is supplied to the plating surface.

9. A method for electrochemically plating an alloy onto a semiconductor substrate, comprising:

providing a plating solution containing copper ions and palladium ions;

immersing a working surface of a substrate and an anode in the plating solution; and

applying an electrical plating bias between the anode and the working surface, wherein the electrical plating bias is configured to simultaneously plate copper and palladium out of the plating solution and onto the working surface.

10. The method of claim 9, wherein the electrical plating bias comprises a constant electrical bias.

11. The method of claim 9, wherein the electrical plating bias comprises a pulsed bias, wherein a first portion of the pulse is configured to primarily plate copper and a second portion of the pulse is configured to primarily plate palladium.

12. The method of claim 9, wherein the amount of copper ions in the plating solution is between about 0.1 M and about 1.0 M and the amount of palladium ions in the plating solution is between about 0.0005 M and about 0.1 M.

13. The method of claim 9, wherein the palladium ions comprise at least one of $PdSO_4$ and $PdCl_2$.

14. The method of claim 9, wherein the amount of copper ions in the plating solution is between about 0.4 M and about 0.8 M.

15. The method of claim 9, further comprising plating the alloy onto the working surface, wherein the alloy comprises about 1.5 weight percent of palladium and about 98.5 weight percent of copper.

16. The method of claim 15, wherein the palladium in the alloy is between about 0.2 weight percent and about 1.5 weight percent.

17. The method of claim 15, further comprising annealing the alloy at a temperature of between about 200° C and about 400° C for a duration of between about 30 seconds and about 60 minutes.

18. The method of claim 9, wherein the electrical plating bias has a current density of between about 0.5 mA/cm^2 and about 80 mA/cm^2 over the working surface.

19. The method of claim 9, further comprising rotating the substrate between about 5 RPM and about 60 RPM while applying the electrical plating bias between the anode and the working surface.

20. A plating solution for plating a copper palladium alloy, comprising:

a source of copper ions;

a source of palladium ions;

an acid at a concentration of between about 5g/L about 200 g/L; and

at least one plating solution additive configured to control plating characteristics.

21. The plating solution of claim 20, wherein the source of palladium ions comprises at least one of $PdSO_4$ and $PdCl_2$.

22. The plating solution of claim 20, wherein a concentration of the palladium ions in the plating solution is between about 0.0005 M and about 0.1 M.

23. The plating solution of claim 20, wherein a concentration of the copper ions in the plating solution is between about 0.1 M and about 1 M.

24. The plating solution of claim 20, wherein a concentration of the copper ions in the plating solution is between about 0.4 M and about 0.8 M.

25. The plating solution of claim 20, wherein the acid comprises at least one of sulfuric acid and phosphoric acid.

26. An electrochemical plating cell configured to plate a homogenous copper-palladium alloy into features of a semiconductor device, comprising:

a substrate support member having a substantially planar lower surface configured to engage a non-production side of a substrate;

an annular insulative cathode contact ring having a plurality of conductive substrate biasing members formed therein, wherein each of the plurality of conductive biasing members is configured to electrically engage a plating surface of a substrate;

a plating cell container configured to hold a volume of electrochemical plating solution;

a power supply in electrical communication with the plurality of conductive members and being configured to apply a plating bias to the plating surface;

an anode positioned in the plating cell container in a position where the anode is immersed in the electrochemical plating solution; and

a process controller programmed to maintain a copper ion concentration between about 0.1 M and about 1.0 M and a palladium ion concentration between about 0.0005 M and about 0.1 M in the electrochemical plating solution.

27. The electrochemical plating cell of claim 26, wherein the process controller is further configured to maintain the plating bias at a current density of between about 0.5 mA/cm^2 and about 80 mA/cm^2.